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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,798	03/04/2004	Ho-seok Choi	1572.1260	5225
21171	7590	01/11/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			NGUYEN, SANG H	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/791,798	Applicant(s) CHOI ET AL.	
	Examiner Sang Nguyen	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-15,17 and 19-21 is/are rejected.
- 7) ☒ Claim(s) 16,18 and 306 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/04/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 03/04/04 has been entered. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7, 9, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Kubota et al (U.S. Patent No. 6,590,643).

Regarding claims 1 and 9; Kubota et al discloses a panel inspection apparatus for inspecting a display panel, comprising:

- a panel supporting member considered to be a stage (3 of figure 1A) for supporting the display panel considered to be LCD panel (1 of figure 1A); and
- a plurality of cameras considered to CCD devices (5 of figures 1A, 8, and 14), being spaced from the panel supporting member (figures 1A, 8, and 14), for providing photograph the panel supported by the panel supporting member (3 of figure 1A); and
- a rotatable camera (5 of figures 8 and 14) support to rotatably support (35, 36, 37 of figure 1) at least one of the plurality of cameras (5 of figures 8 and 14) in a

direction (S of figures 8 and 14), wherein a camera support member considered to be a rail (35 of figure 14) for translating CCD camera (5 of figure 14) to support the rotatable camera support considered to be a guide motor (36 of figure 14) and arm (37 of figure 14) above the panel supporting member (3 of figure 1A). See figures 1-17.

FIG. 8

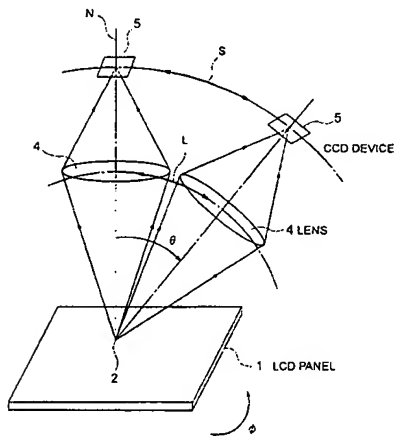
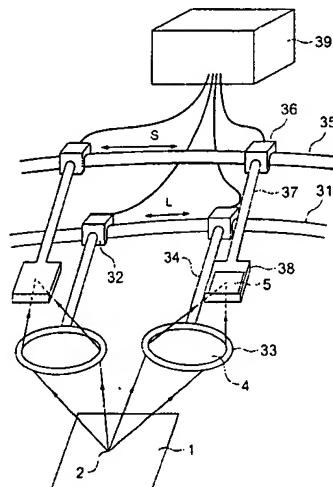


FIG. 14



Regarding claim 7, Kubota et al teaches at least one additional rotatable camera support (figure 14).

Regarding claim 12; Kubota et al teaches about the panel supporting member (3 of figure 1) is shaped like a table (figure 1).

Claim Rejections - 35 USC § 103

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 8, 10, 13-15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al (U.S. Patent No. 6,590,643) in view of Francis et al (FR 2669180).

Regarding claims 2, 13-14, and 17; Kubota et al discloses all of features of claimed invention except for a first camera for providing to face the display panel from a direction perpendicular to the panel, and a second camera for providing to face the display panel at an acute angle to the display panel and being spaced from the first camera, wherein the first camera is installed within a predetermined distance of the second camera. However, The Prior Art of Kubota et al's device teaches at figure 15 with a first camera (43 of figure 15) for providing to face the LCD panel (41 of figure 15) from a direction perpendicular to the panel, and a second camera (43 of figure 15) for providing to face the LCD panel (41 of figure 15) at an acute angle (figure 15) to the LCD panel (41 of figure 15) and being spaced from the first camera (43 of figure 15), wherein the first camera (5 of figure 14) is installed within a predetermined distance of the second camera (5 of figure 14). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify panel inspection apparatus of Kubota et al with for a first camera for providing to face the display panel from a direction perpendicular to the panel, and a second camera for providing to face the

display panel at an acute angle to the display panel and being spaced from the first camera, wherein the first camera is installed within a predetermined distance of the second camera as taught by The Prior Art of Kubota et al for the purpose of inspecting better or accurately viewing angle to display panel to high resolution.

Regarding claim 8; Kubota et al discloses all of features of claimed invention as indicate claim 1, except for the second camera support by the rotatable camera support is provide so as not to interfere with the first camera supported by an adjacent one of the rotatable camera while being rotated. However, Francis et al teaches about the second camera support by the rotatable camera support is provide so as not to interfere with the first camera supported by an adjacent one of the rotatable camera while being rotated (figure 2 and 5-6). It would have been obvious to one having ordinary skill in the art at the time he invention was made to modify panel inspection apparatus of Kubota et al with the second camera support by the rotatable camera support is provide so as not to interfere with the first camera supported by an adjacent one of the rotatable camera while being rotated as taught by Francis et al for the purpose of inspecting components assembled on electronic card.

Regarding claim 10; Kubota et al discloses all of features of claimed invention except for the camera support member supports the rotatable camera support a predetermined distance away from the panel supporting member. However, Francis et al teaches that it is known in the art to provide the camera support member (6 of figure 2) supports the rotatable camera support (7, 8 o figure 2) a predetermined distance away from the panel supporting member (figure 2 and 5-6). It would have been obvious

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to one having ordinary skill in the art at the time the invention was made to modify panel inspection apparatus of Kubota et al with the camera support member supports the rotatable camera support a predetermined distance away from the panel supporting member as taught by Francis et al for the purpose of inspecting components assembled on electronic card.

Regarding claim 15; Kubota et al discloses all of features of claimed invention indicate as, in figure 8, an axis line (N of figure 8 is perpendicular to the LCD panel 1) of the first camera (5 of figure 8) and an axis line (figure 8) are separated by an angle (θ of figure 8) and except for the angle is 30 degrees. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify panel inspection apparatus of Kubota et al with the angle is 30 degrees, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al in view of Francis et al as applied to claim 9 above, and further in view of Prior Art of Present Invention (figure 1).

Regarding claim 11; Kubota et al discloses all of features of claimed invention except for the size of the display panel is not larger than the camera scope of each of the plurality of cameras. However, Prior Art of Present Invention teaches that it is known in the art to provide the size of the display panel is not larger than the camera scope of each of the plurality of cameras (figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify panel inspection

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apparatus of Kubota et al with the size of the display panel is not larger than the camera scope of each of the plurality of cameras as taught by Prior Art of Present Invention for the purpose of inspecting accurately all the display panel.

Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al (U.S. Patent No. 6,590,643).

Regarding claims 19-21; Kubota et al discloses a panel inspection apparatus for inspecting a display panel, comprising:

- a panel supporting member considered to be a stage (3 of figure 1A) for supporting the display panel considered to be LCD panel (1 of figure 1A);
- a plurality of cameras considered to CCD devices (5 of figures 1A, 8, and 14), being spaced from the panel supporting member (figures 1A, 8, and 14), for providing photograph the panel supported by the panel supporting member (3 of figure 1A); and
- a rotatable camera (5 of figures 8 and 14) support to rotatably support (35, 36, 37 of figure 1) at least one of the plurality of cameras (5 of figures 8 and 14) in a direction (S of figures 8 and 14), wherein a camera support member considered to be a rail (35 of figure 14) for translating CCD camera (5 of figure 14) to support the rotatable camera support considered to be a guide motor (36 of figure 14) and arm (37 of figure 14) above the panel supporting member (3 of figure 1A). see figures 1-17.

Kubota et al discloses all of features of claimed invention indicated above except

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for a plurality of first cameras has an optical axis concurrent with axis of rotation of the rotatable camera support and a plurality of second cameras has an optical axis at an acute angle relative to the plurality of the first camera. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify a plurality of first cameras has an optical axis concurrent with axis of rotation of the rotatable camera support and a plurality of second cameras has an optical axis at an acute angle relative to the plurality of the first camera in the panel inspection apparatus of Kubota et al, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Allowable Subject Matter

Claims 3-6, 16, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record, taken alone or in combination, fails discloses or render obvious a panel inspection apparatus comprising all the specific elements with the specific combination including of a driving part of rotate the second camera, a first bracket providing between the driving part and the first camera to support the first camera, and a second bracket extending from the driving part to the second camera to support the second camera, wherein second bracket supports and enables the second camera to rotate around an axis line of the first camera, wherein the driving part further comprises a driving motor with a rotational axis aligned to the axis line of the first

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camera, and wherein the second bracket is combined to the first bracket at an acute angle toward the panel supporting member in set forth limitation of claims 3-6 and 18.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kobayashi et al (6697514) discloses apparatus for inspecting a fluorescent substance on a plasma display; Henley et al (5790247) discloses technique for determined defect position in there dimensions in a transparent structure; Nagashima et al (5734158) discloses LCD panel test apparatus; Aoki et al (5696550) image quality inspection system; Hines et al (5349190) discloses adjustable triple-detection image data acquisition system; Kawamura et al (4989981) discloses automatic quality control measuring system for automotive assembly line; Young et al (4870357) discloses LCD error detection system; or Clarke et al (4629319) discloses panel surface flaw inspection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Nguyen whose telephone number is (571) 272-2425. The examiner can normally be reached on 9:30 am to 7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sang Nguyen/ SN

January 4, 2005



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